SUPPORT FOR THE AMENDMENT

Claims 1, 12, 29, 34, 36, and 37 are amended. Support for the above amendment is found at page 7, lines 8-23, of the specification, and Figure 1. No new matter is believed to be introduced by the above amendment.

REMARKS

Claims 1-43 are pending. Favorable consideration is respectfully requested.

At the outset, Applicants thank Examiner Leung for kindly making herself available for the discussion held on June 19, 2003, which is summarized and expanded upon below. Further, Applicants thank Examiner Leung for indicating that the above amendments combined with the following remarks would further favorable prosecution of the present application.

The rejection of the Claims 1-19, 29, 32, 34, and 36-43 under 35 U.S.C. § 112, first paragraph, is believed to be obviated by the above amendment combined with the following remarks.

Claim 34 has been amended to depend from Claim 33 which contains the appropriate antecedent basis for the embodiment of Claim 34. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The Office contends that the claimed semiconductor laser device in not enabled by the present specification because the claims fail to proved a light generating layer, upper and lower confining means, a resonant cavity means, and a pumping means. Applicants respectfully submit that where the claims fail to provide for the above standard embodiments of a semiconductor laser device, such embodiments are understood to be, at the very least, inherently present in the claimed invention. Further, the claimed invention is understood to not be limited to only those embodiments understood to be necessary for its function. The

preamble of the claimed semiconductor laser device, in fact, has life since all of the claimed layers are preceded with "semiconductor". Therefore, all of the required embodiments disclosed in the specification are inherently present and the skilled artisan would clearly identify how to make and use the claimed invention. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of the Claims 1-3, 5-15, 17-19, 29, 34, 36-38, and 40-43, under 35 U.S.C. § 102(b) over McIlroy et al. is believed to be obviated by the above amendment combined with the following remarks.

McIlroy et al. discloses, at best, a device wherein an undoped optical waveguide layer (41_1) may be positioned on top of a cladding layer (3). McIlroy et al. fails to disclose or suggest a semiconductor laser device that contains an undoped spacer layer that is positioned between a cladding layer and an optical confinement layer and in physical contact with both the cladding layer and the optical confinement layer.

In direct contrast, the claimed invention relates, in part, to a semiconductor laser device that contains an undoped spacer layer that is positioned between a cladding layer and an optical confinement layer and in physical contact with both the cladding layer and the optical confinement layer. Since McIlroy et al. fails to disclose or suggest such a device, McIlroy et al. clearly fails to anticipate the claimed invention. Further, McIlroy et al. actually teaches away from the claimed invention because it discloses that a doping layer (42) is required to cancel internal electric fields near the active layer (See column 4, lines 33-53). Accordingly, it would appear as if the doping layer (42) is not in any contact whatsoever, including electrical contact, with the undoped optical waveguide layer (41_1) which is towards the outside face of the doping layer (42).

In light of the above, McIlroy et al. fails to disclose or suggest the claimed invention. Accordingly, withdrawal of this ground of invention is respectfully requested.

The rejection of the Claims 1-4, 6, 11, and 29 under 35 U.S.C. § 102(b) over Burnham et al. is believed to be obviated by the above amendment combined with the following remarks.

Burnham et al. discloses, at best, a photo-pumped laser device that may contain an thick undoped cladding layer (18) having a thickness of 1.63 μm and positioned between a thin inner cladding layer (14) and a thin cladding layer (19) that may be doped with selenium (See Figure 1). Further, Burnham et al. discloses, at best, a current-driven laser that may contain a thin inner cladding layer (36) and a thin outer cladding layer that may be doped with selenium that has a thickness of 0.90 μm (34) (See Figure 8). The thin outer cladding layer that may be doped with selenium has a thickness of 0.90 μm (34) (See Figure 8), while the thick undoped cladding layer (18) has a thickness of 1.63 μm (See Figure 1). Burnham et al. fails to disclose or suggest a semiconductor laser device that contains an undoped semiconductor spacer layer having a thickness that is less than a thickness of an doped semiconductor cladding layer.

In direct contrast, the claimed invention relates, in part, to a semiconductor laser device that contains an undoped spacer layer that is positioned between a cladding layer and an optical confinement layer and in physical contact with both the cladding layer and the optical confinement layer. Further, the claimed spacer layer has a thickness that is less than that of the cladding layer. Since Burnham et al. fails to disclose or suggest such a device, Burnham et al. clearly fails to anticipate the claimed invention. Further, Burnham et al. actually teaches away from the claimed invention because even if one was to insert the thick undoped cladding layer (18) of Figure 1 into the current-driven device according to Figure 8, the thick undoped cladding layer (18) would be much more than a half a micron thicker than that of the thickness of (34) the thin outer cladding layer (i.e. 1.63 μm - 0.90 μm = 0.73 μm). Further, Burnham et al. discloses that a thick undoped cladding layer (18) would be very

desirable in order to electrically insulate the inner layers from the outer doped cladding section.

In light of the above, Burnham et al. fails to disclose or suggest the claimed invention. Accordingly, withdrawal of this ground of invention is respectfully requested.

The rejection of the Claims 4, 16, and 39 under 35 U.S.C. § 103(a) over McIlroy et al. combined with Burnham et al. is believed to be obviated by the above amendment combined with the following remarks.

As discussed above, McIlroy et al. fails to disclose or suggest a semiconductor laser device and actually teaches away from the claimed invention because it discloses that a doping layer (42) is required to cancel internal electric fields near the active layer (See column 4, lines 33-53).

As discussed above, Burnham et al. fails to disclose or suggest a semiconductor laser device that contains an undoped semiconductor spacer layer having a thickness that is less than a thickness of an doped semiconductor cladding layer, and actually teaches away from the claimed invention because it discloses that the thick undoped cladding layer (18) would be much more than a half a micron thicker than that of the thickness of (34) the thin outer cladding layer.

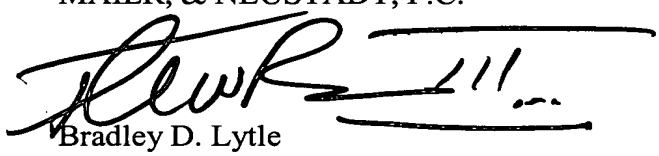
Therefore, even if the disclosures of McIlroy et al. and Burnham et al., are combined, neither one provides what the other lacks in its disclosure. Further, since both specifically teach away from the claimed invention as discussed above, a person would not modify either one of the disclosures in view of the other because each disclosure, in its own right, teaches away from modifying the other towards the claimed invention.

In light of the above, Applicants respectfully request withdrawal of this ground of rejection.

Applicants respectfully submit that the present application is now in condition for allowance. Early notice to this effect is respectfully requested. Should anything further be required to place this application in condition for allowance, the Examiner is requested to contact the undersigned by telephone.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER, & NEUSTADT, P.C.



Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Thomas W. Barnes
Registration No. 52,595

Tel.: (703) 413-3000
Fax: (703) 413-2220
NFO/TWB:sjh
I:\ATTY\TWB\236965US-AM.DOC

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IN THE CLAIMS

--1. (Twice Amended): A semiconductor laser device, comprising:

a doped semiconductor cladding layer;

an undoped semiconductor optical confinement layer;

an undoped semiconductor spacer layer positioned between said cladding layer and said optical confinement layer and in physical contact with both said cladding layer and said optical confinement layer and wherein said undoped semiconductor spacer layer has a thickness that is less than a thickness of said doped semiconductor cladding layer;

a light-generating layer disposed over said optical confinement layer; and

a first electrode and second electrode for supplying an electrical current to said light generating layer.

12. (Twice Amended) A semiconductor laser device, comprising:

a semiconductor substrate;

an n-doped semiconductor lower cladding layer;

an undoped semiconductor lower optical confinement layer;

an undoped semiconductor spacer layer between said lower cladding layer and said lower optical confinement layer and in physical contact with both said cladding layer and said

optical confinement layer and wherein said undoped semiconductor spacer layer has a thickness that is less than a thickness of said doped semiconductor cladding layer;

a semiconductor active layer for generating light;

a semiconductor upper optical confinement layer;

a p-doped semiconductor upper cladding layer; and

electrodes for current injection to said device.

29. (Twice Amended) A semiconductor device comprising:

a first III - V semiconductor layer formed by MOCVD of n-doped semiconductor material,

a III - V semiconductor spacer layer formed by MOCVD of undoped semiconductor material deposited directly on said first III - V semiconductor layer,

a second III - V semiconductor layer formed by deposition of undoped semiconductor material directly on said spacer layer, whereby lattice defects caused by said first III - V semiconductor layer are mitigated by said spacer layer, and

a first electrode and second electrode for sending an electrical current through said III-V semiconductor layers; wherein

said undoped semiconductor spacer layer is between said lower cladding layer and said lower optical confinement layer and in physical contact with both said cladding layer and said optical confinement layer and wherein said undoped semiconductor spacer layer has a thickness that is less than a thickness of said doped semiconductor cladding layer.

34. (Amended) The semiconductor device of Claim [29] 33, wherein said optical confinement layer comprises a quaternary compound material.